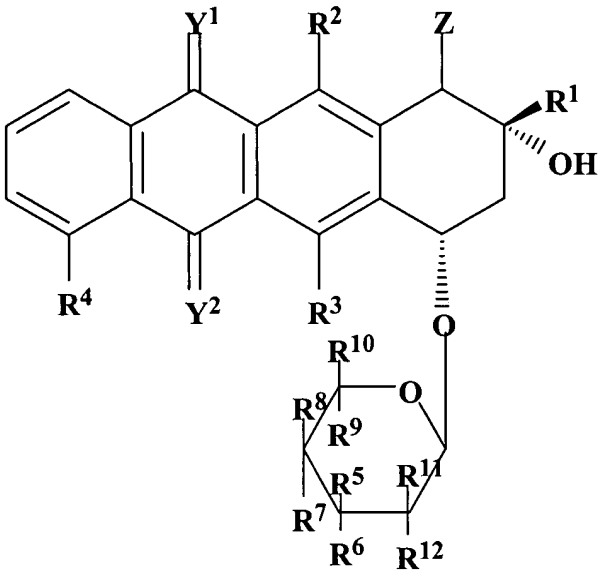
Amendments to the Claims:

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

1. (currently amended): A substituted anthracycline ~~having~~ comprising the formula:



wherein, R^1 ~~denotes any suitable group or combination of groups that form but are not limited to~~ is a nucleic acid intercalator, ~~or binding compound;~~ a topoisomerase inhibitor, ~~including but not limited to,~~ an alkyl chain[[;]], a (-$COCH_2R^{13}$) group[[;]], or a (C(OH)- CH_2R^{13});

wherein, R^{13} is a hydrogen (-H) group, [[or]] a hydroxyl group (-OH)[[;]], a methoxy group (-OCH_3)[[;]], an alkoxy group ~~having~~ comprising 1-20 carbon atoms[[;]], an alkyl group ~~having~~ comprising 1-20 carbon atoms[[;]], an aryl group ~~having~~ comprising 1-20 carbon atoms[[;]], a fatty acyl group ~~having~~ comprising the general structure -O-$CO(CH2)_nCH_3$, wherein n = an integer from 1 to about 20[[;]], [[or]] a fatty acyl group ~~having~~ comprising the general structure -O-$CO(CH_2)_l(CH{=}CH)_m(CH_2)_nCH_3$, wherein l is an integer between 1 to 3, m is an integer between 1 and ~~about~~ 6, and n is an integer between 1 ~~to about~~ and

9[[;]], [[or]] a [[chain(R) such as]] -OCO-$(CH_2)_n$-CH_2NH_2[[;]], or a OCO-$(CH_2)_n$-CO_2H [[and its salts.]];

~~each of~~ wherein R^2 and R^3 [[is]] are, independently of the other, a hydrogen (-H), a hydroxyl group (-OH)[[;]], or a methoxy group (-OCH_3);

wherein R^4 is a hydrogen (-H) group[[;]], a methoxy group (-OCH_3)[[;]], a hydroxyl group (-OH)[[;]], or a halide;

~~each of~~ wherein Y^1 and Y^2 [[is]] are, independently of the other, a double bonded oxygen, sulphur, or nitrogen atom;

wherein Z is a –H[[;]], -OH[[;]], a -CO_2H [[group;]], or a -CO_2R group;

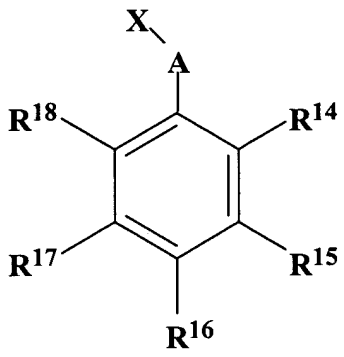
wherein R^7, R^8, are, independently, -H[[;]], -OH[[;]], a halide[[;]], -OR^{19}[[;]], -SH[[;]], -SR^{19}[[;]], -NH_2[[;]], -NHR^{19}[[;]], -$N(R^{19})_2$[[;]] or -CH_3[[;]], and R^7 can additionally be a saccharide[[;]], wherein R^{19} is an alkyl chain[[;]], an alkylating moiety[[;]], a cycloalkyl chain[[;]], a cyclic ring[[;]], or a hydrogen;

wherein R^9 [can be] is an –H[[;]], -CH_3[[;]], alkyl[[;]], aryl[[;]], CH_2OH, or, a CH_2F group;

wherein R^{10}, R^{11}, and R^{12} are, independently, -H[[;]], -OH[[;]], a halide[[;]], -OR[[;]], -SH[[;]], -SR[[;]], -NH_2[[;]], -NHR[[;]], -$N(R)_2$[[;]], or a -CH_3;

wherein one of R^5 and R^6 is an -H;

wherein one of R^5 and R^6 is a X-alkyl-aromatic-ring (-XAAR) substituent ~~such as –XAAR~~, wherein, A is an alkyl group and wherein, AR is an substituted phenyl ring[[;]], [[or]] a substituted five-member ring[[;]], [[or]] a heteroatomic five-member ring[[;]], or a heteroatomic six-member ring, ~~such as a pyridine ring;~~ of the form[[;]]:



;

wherein[[,]] at least one of R^{14}-R^{18} is an ~~are independently a~~ (-H) group[[;]] and wherein at least one of R^{14}-R^{18} is a, a hydroxyl group (-OH)[[;]], a methoxy group ($-OCH_3$)[[;]], a nitro group ($-NO_2$), an amine group ($-NH_2$), a halide[[;]], an alkoxy group ~~having~~ comprising 1-20 carbon atoms[[;]], an alkyl group ~~having~~ comprising 1-20 carbon atoms[[;]], an aryl group ~~having~~ comprising 1-20 carbon atoms[[;]], an alkyl-amino group[[;]], an alkyl-thio group[[;]], a cyano group (CN, SCN)[[;]], a[[n]] $-CO_2H$ group[[;]], or a[[n]] $-CO_2R$ group; and

~~the aromatic ring may be disubstituted, trisubstituted, tetrasubstituted or pentasubstituted;~~

~~and~~

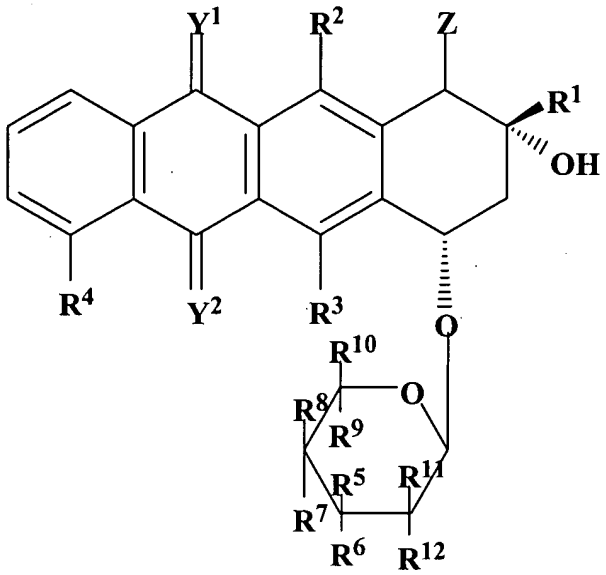
X is a -O, –N, [[or]] -S, [[or]] -SO, or a $-SO_2$ group; and

A is $(CH_2)_n$ where n = 0-10;

wherein, if R^5 is a XAAR substituent R^6 is not and if R^6 is a XAAR substituent R^5 is not.

Claims 2-16 (cancelled).

17. (Amended) A substituted anthracycline ~~having~~ comprising the formula:



wherein, R^1 ~~denotes any suitable group or combination of groups that form but are not limited to~~ is a nucleic acid intercalator, ~~or binding compound;~~ a topoisomerase inhibitor, ~~including but not limited to,~~ an alkyl chain[[;]], a ($-COCH_2R^{13}$) group[[;]], or a ($C(OH)-CH_2R^{13}$);

wherein, R^{13} is a hydrogen (-H) group, [[or]] a hydroxyl group (-OH)[[;]], a methoxy group ($-OCH_3$)[[;]], an alkoxy group ~~having~~ comprising 1-20 carbon atoms[[;]], an alkyl group ~~having~~ comprising 1-20 carbon atoms[[;]], an aryl group ~~having~~ comprising 1-20 carbon atoms[[;]], a fatty acyl group ~~having~~ comprising the general structure $-O-CO(CH2)_nCH_3$, wherein n = an integer from 1 to about 20[[;]], [[or]] a fatty acyl group ~~having~~ comprising the general structure $-O-CO(CH_2)_l(CH=CH)_m(CH_2)_nCH_3$, wherein l is an integer between 1 to 3, m is an integer between 1 and ~~about~~ 6, and n is an integer between 1 ~~to about~~ and 9[[;]], [[or]] a [[chain(R) such as]] $-OCO-(CH_2)_n-CH_2NH_2$[[;]], or a $OCO-(CH_2)_n-CO_2H$ [[and its salts.]];

~~each of~~ wherein R^2 and R^3 [[is]] are, independently of the other, a hydrogen (-H), a hydroxyl group (-OH)[[;]], or a methoxy group ($-OCH_3$);

wherein R^4 is a hydrogen (-H) group[[;]], a methoxy group ($-OCH_3$)[[;]], a hydroxyl group (-OH)[[;]], or a halide;

~~each of~~ wherein Y^1 and Y^2 [[is]] are, independently of the other, a double bonded oxygen, sulphur, or nitrogen atom;

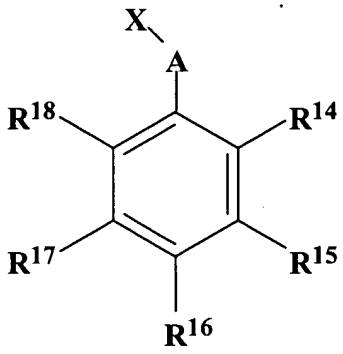
wherein Z is a –H[[;]], -OH[[;]], a $-CO_2H$ [[group;]], or a $-CO_2R$ group;

wherein R^5[[,]] and R^6, are, independently, -H[[;]], -OH[[;]], a halide[[;]], $-OR^{19}$[[;]], -SH[[;]], $-SR^{19}$[[;]], $-NH_2$[[;]], $-NHR^{19}$[[;]], $-N(R^{19})_2$[[;]] or $-CH_3$[[;]], and [[R]] R^5 can additionally be [[a]] an alkylating moiety[[;]], wherein R^{19} is an alkyl chain[[;]], an alkylating moiety[[;]], a cycloalkyl chain[[;]], a cyclic ring[[;]], a hydrogen[[;]];

wherein R^9 [can be] is an –H[[;]], $-CH_3$[[;]], alkyl[[;]], aryl[[;]], CH_2OH, or CH_2F group;

wherein R^{10}, R^{11}, and R^{12} are, independently, -H[;], -OH[;], a halide[;], -OR[;], -SH[;], -SR[;], $-NH_2$[;], -NHR[;], $-N(R)_2$[;] or $-CH_3$;

wherein one of R^7 and R^8 is an –H[[;]] and wherein one of R^7 and R^8 is a X-alkyl aromatic-ring (-XAAR) substituent ~~such as –XAAR~~, wherein, A is an alkyl group and wherein, AR is an unsubstituted phenyl ring[[;]], [[or]] a substituted phenly ring[[;]], [[or]] a substituted five-member ring [[such as a pyridine ring;]] or a heteroatomic five-member ring, of the general form[[;]]:



;

wherein, R^{14} -R^{18} are independently a (-H) group[[;]], a hydroxyl group (-OH)[[;]], a methoxy group (-OCH_3)[[;]], a nitro group (-NO_2), an amine group (-NH_2), a halide[[;]], an alkoxy group having 1-20 carbon atoms[[;]], an alkyl group having 1-20 carbon atoms[[;]], an aryl group having 1-20 carbon atoms[[;]], an alkyl-amino group[[;]], an alkyl-thio group[[;]], a cyano group (CN, SCN)[[;]], an -CO_2H group[[;]], or a[[n]] -CO_2R group; and

~~the aromatic ring may be disubstituted, trisubstituted, tetrasubstituted or pentasubstituted;~~

~~and~~

X is a -O, -N, [[or]] -S, [[or]] –SO, or a -SO_2 group; and

A is $(CH_2)_n$, where n = 0-10;

wherein if R^7 is a XAAR substituent R^8 is not and if R^8 is a XAAR substituent R^7 is not.

Claims 18-47 (cancelled).

48. (new): The substituted anthracycline of claim 1, wherein the -XAAR substituent is disubstituted, trisubstituted, tetrasubstituted, or pentasubstituted.

49. (new): The substituted anthracycline of claim 1, wherein the substituted anthracycline is formulated into a pharmaceutically acceptable carrier.

50. (new): The substituted anthracycline of claim 17, wherein the -XAAR substituent is disubstituted, trisubstituted, tetrasubstituted, or pentasubstituted.

51. (new): The substituted anthracycline of claim 17, wherein the substituted anthracycline is formulated into a pharmaceutically acceptable carrier.

52. (new): A method of treating or preventing cancer comprising administering to a patient a substituted anthracycline of claim 1 or claim 17.

53. (new): The method of claim 52, wherein the substituted anthracycline is formulated into a pharmaceutically acceptable carrier.

54. (new): The method of claim 52, wherein the substituted anthracycline is the substituted anthracycline of claim 1.

55. (new): The method of claim 52, wherein the substituted anthracycline is the substituted anthracycline of claim 17.

56. (new): The method of claim 52, wherein the cancer is breast cancer, lung cancer, ovarian cancer, Hodgkin's disease, non-Hodgkin's lymphoma, acute leukemia, or carcinoma of the testes.

57. (new): The method of claim 56, wherein the cancer is breast cancer.